

Title (en)

ULTRASONIC LIQUID EJECTING APPARATUS

Publication

EP 0084458 A3 19840523 (EN)

Application

EP 83300242 A 19830118

Priority

- JP 628482 A 19820118
- JP 2003082 A 19820210
- JP 10790182 A 19820623

Abstract (en)

[origin: CA1206996A] "Ultrasonic Liquid Ejecting Apparatus" An ultrasonic liquid ejecting apparatus for discharging liquid droplets comprises a housing including a chamber for holding liquid therein having an intake port connected to a liquid supply container. A bimorph vibrator system is provided comprising a vibrating member secured to the housing in pressure transmitting relation with the liquid in the chamber and a piezoelectric transducer secured to the vibrating member for inducing a displacement therein to discharge a small quantity of liquid through an nozzle opening formed in the vibrating member. A circuit is provided for exciting the transducer at a frequency corresponding to the resonant frequency of the vibrator system.

IPC 1-7

F23D 11/34; B05B 17/06; H01L 41/08; B41J 3/04

IPC 8 full level

B05B 17/06 (2006.01); **B41J 2/025** (2006.01); **F23D 11/34** (2006.01)

CPC (source: EP US)

B05B 17/0646 (2013.01 - EP US); **B05B 17/0669** (2013.01 - EP US); **B41J 2/025** (2013.01 - EP US); **F23D 11/345** (2013.01 - EP US); **B41J 2202/15** (2013.01 - EP US)

Citation (search report)

- [ED] EP 0077636 B1 19860430
- [YP] EP 0049636 A1 19820414 - MATSUSHITA ELECTRIC IND CO LTD [JP]
- [Y] US 2836738 A 19580527 - CROWNOVER JOSEPH W
- [Y] FR 2311595 A1 19761217 - MATSUSHITA ELECTRIC IND CO LTD [JP]
- [Y] US 2910545 A 19591027 - GLENN WILLIAM E
- [YD] FR 2107409 A5 19720505 - CLEVITE CORP
- [YD] FR 2100022 A5 19720317 - SIEMENS AG
- [A] US 4245225 A 19810113 - FILLMORE GARY L, et al
- [A] FR 2364695 A1 19780414 - RECOGNITION EQUIPMENT INC [US]
- [A] FR 2196844 A1 19740322 - CIBA GEIGY AG [CH]

Cited by

US5518179A; GB2358818A; GB2358818B; DE102004016985A1; DE102004016985B4; US6113001A; EP0648606A3; EP0681873A1; US6062212A; NL9301259A; US5854645A; EP2021131A4; GB2291605A; GB2291605B; US5551416A; EP2249970A4; WO9729851A1; WO0033972A1; WO2023215389A1; WO9503179A1; US7472701B2; US6212936B1; EP0099730B1; WO2021180772A1

Designated contracting state (EPC)

DE FR GB

DOCDB simple family (publication)

EP 0084458 A2 19830727; EP 0084458 A3 19840523; EP 0084458 B1 19861203; AU 1054183 A 19830728; AU 540267 B2 19841108; CA 1206996 A 19860702; DE 3368115 D1 19870115; US 4605167 A 19860812

DOCDB simple family (application)

EP 83300242 A 19830118; AU 1054183 A 19830118; CA 419570 A 19830117; DE 3368115 T 19830118; US 45888183 A 19830117